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09/970,487	10/03/2001	Nikolai K.N. Leung	PA010556	1159

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QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER	
NG, CHRISTINE Y	
ART UNIT	**PAPER NUMBER**
2616	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com
kascanla@qualcomm.com
nanm@qualcomm.com

Office Action Summary	Application No.	Applicant(s)	
	09/970,487	LEUNG ET AL.	
	Examiner	Art Unit	
	Christine Ng	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,9,10,12,14-16,18,19 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9,10,12,14-16,18,19 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 6, 14-16, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 6 line 7: "a compressed frame packet" should be changed to "a compressed framed packet" to match "the compressed framed packet" claimed in lines 7 and 8.

Referring to claims 14-16, 18 and 19: It is unclear what the difference is between "a multicast address" (lines 4-5) and "a multicast Internet Protocol address" (lines 9-10).

Referring to claims 18 and 19: It is unclear what is meant by "means for preparing a second Internet Protocol packet encapsulating the broadcast message and addressed to a multicast address". It is unclear why a second Internet Protocol packet encapsulating the broadcast message has to be prepared, when the broadcast message is already sent to all recipients of the multicast group. The specification also does not describe this step.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,751,218 to Hagirahim et al.

Referring to claim 1, Hagirahim et al disclose in Figure 1 a wireless communication system (Column 9, lines 54-57) supporting broadcast transmissions, the system having a broadcast source node (source IP gateway 21 connected to content server 27) and at least one termination node (destination IP gateway 21), at least one router (routers 13) coupled between the source node and the at least one termination node. Refer to Column 2, lines 7-32. The method for setting up transmission paths comprises:

Determining (Figure 2, steps S1-S3) a transmission range for a broadcast transmission within the system. Source IP gateway 21 sends a Multicast Initiating Address MIA to controller 31 to determine the participants of the multicast service using ATM/IP address pairs. Refer to Column 3, lines 19-38 and Column 4, lines 18-49.

Building (Figure 2, Steps S4-S8) a multicast tree from a first termination node to the broadcast source node, the multicast tree including the at least one router. After determining ATM/IP address pairs, "of the IP gateways, those having the IP addresses in the ATM/IP pairs, request routers to attach the IP host gateways to the multicast and thus form the multicast group of tree". Refer to Column 3, lines 39-56 and Column 4, line 65 to Column 5, line 32.

Transmitting (Figure 2, Step S9) a broadcast message through the multicast tree over the transmission range. Refer to Column 5, lines 33-39.

Although Hagirahim et al do not specifically disclose wherein *the first termination node is one of a packet control node or a packet data services node*, Hagirahim et al discloses that the first termination node is an IP gateway 21. The specification does not define a packet control node. Therefore, the IP gateway 21 can be a packet control node since it controls the transmission of packets through the IP backbone 11. The IP gateway also reads on a packet data services node (PDSN), since a PDSN provides access to an Internet, and the IP gateway 21 is providing access to IP backbone 11.

Referring to claim 2, Hagirahim et al disclose that building a multicast tree comprises successively registering with neighboring multicast routers (routers 13) between the first termination node (destination IP gateway 21) and the broadcast source node (source IP gateway 21). Connections are established when "one or more of each of the routers 13 in the IP backbone11 is associated with each IP gateway 21". Refer to Column 3, lines 39-44.

Referring to claim 3, Hagirahim et al disclose that transmitting the broadcast message comprises:

Receiving the broadcast message at the broadcast source (source IP gateway 21). "The IP multicast data is then encapsulated in ATM cells at the source with an IP and sent to the gateway 21" (Column 3, lines 47-49).

In response to receiving the broadcast message, the broadcast source

encapsulating the broadcast message in an Internet Protocol packet to form a multicast Internet Protocol packet. "At the gateway 21 each of the ATM cells is encapsulated in an IP multicast packet with an IP Multicast Assigned Address and sent to the IP backbone 11" (Column 3, lines 49-52).

Referring to claim 9, Hagirahim et al disclose in Figure 1 an infrastructure element (source IP gateway 21) for generating Internet Protocol packets in a transmission system supporting broadcast transmissions, the infrastructure element comprising:

Means (Figure 2, Steps S1-S3) for determining a broadcast transmission range. Source IP gateway 21 sends a Multicast Initiating Address MIA to controller 31 to determine the participants of the multicast service using ATM/IP address pairs. Refer to Column 3, lines 19-38 and Column 4, lines 18-49.

Means for generating an Internet Protocol packet, the Internet Protocol packet having a multicast address. "At the gateway 21 each of the ATM cells is encapsulated in an IP multicast packet with an IP Multicast Assigned Address and sent to the IP backbone 11" (Column 3, lines 49-52).

Means for transmitting the Internet Protocol packet. "The IP packets are routed to the IP host gateways over the IP backbone" (Column 3, lines 53-54).

Although Hagirahim et al do not specifically disclose wherein *the infrastructure element is one of a packet control node or a packet data services node*, Hagirahim et al discloses that the infrastructure element is an IP gateway 21. The specification does not define a packet control node. Therefore, the IP gateway 21 can be a packet control

node since it controls the transmission of packets through the IP backbone 11. The IP gateway also reads on a packet data services node (PDSN), since a PDSN provides access to an Internet, and the IP gateway 21 is providing access to IP backbone 11.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,751,218 to Hagirahim et al in view of U.S. Patent No. 6,781,999 to Eyuboglu et al.

Hagirahim et al disclose in Figure 5 that the multicast Internet Protocol packet (121) identifies a multicast Internet Protocol address as a destination (131). The IP_M_Assigned field is the address of the multicast group. Refer to Column 3, lines 36-38 and Column 7, lines 6-10.

Hagirahim et al do not disclose that the multicast Internet Protocol packet identifies the broadcast source as a source.

Eyuboglu et al disclose that multicast IP packets have source addresses identifying the sender of the IP packet. Refer to Column 7, lines 40-59. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made include that the multicast Internet Protocol packet identifies the broadcast source

as a source; the motivation being in order to more easily identify a path from the source to the destination nodes through the network.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,751,218 to Hagirahim et al in view of U.S. Patent No. 6,781,999 to Eyuboglu et al, and in further view of U.S. Patent No. 6,895,216 to Sato et al.

Hagirahim et al disclose that transmitting the broadcast message comprises receiving the multicast Internet Protocol packet at the first termination Point (destination IP gateway 21).

Hagirahim et al do not disclose that in response to receiving the multicast Internet Protocol packet the first termination point compresses the multicast Internet Protocol packet to form a compressed packet.

Sato et al disclose compressing multicast information to several wireless terminals in accordance with a transmission rate. Refer to Column 11, lines 42-52. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that in response to receiving the multicast Internet Protocol packet the first termination point compresses the multicast Internet Protocol packet to form a compressed packet; the motivation being that in case transmission rate is low, compressing the multicast information allows more information to be transmitted per unit time; thereby saving bandwidth and processing time.

Hagirahim et al also do not specifically disclose encapsulating the compressed packet in an Internet Protocol packet to form a compressed packet. However, the system disclosed by Hagirahim et al utilizes IP encapsulation of ATM cells.

Hagirahim et al also do not disclose the compressed packet identifying the first termination point as a source. Refer to the rejection of claim 4.

8. Claims 6 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,781,999 to Eyuboglu et al in view of U.S. Patent No. 6,895,216 to Sato et al.

Referring to claim 6, Eyuboglu et al disclose in Figure 8 a method for processing Internet Protocol packets in a wireless transmission system supporting broadcast transmissions, the method comprises:

Receiving an Internet Protocol packet at a packet service data node (PDSN 100), the Internet Protocol packet encapsulating a broadcast message. Refer to Column 2, lines 41-58 and Column 9, lines 22-23.

Applying a framing protocol (Simple Link Layer Protocol) to produce a frame packet (Figure 10, link layer frame carrying IP multicast packet 140). "When the PDSN receives an IP packet that belongs to a multicast group, it encapsulates it in a Simple Link Layer frame, and sends it over these multicast A10 tunnels to RNC's that serve members of that multicast group". Refer to Column 5, lines 38-43; and Column 9, lines 6-10 and 22-40.

Encapsulating the framed packet with a routing protocol (A10 Tunnel ID for forwarding over multicast A10 tunnels). Refer to Column 9, lines 34-40.

Encapsulating the framed packet according to a multicast Internet Protocol address for transmission (Figure 10, ATI 150). Refer to Column 3, line 48 to Column 4, line 26; and Column 10, lines 11-31.

Eyuboglu et al do not disclose that the Internet Protocol packet has been compressed.

Sato et al disclose compressing multicast information to several wireless terminals in accordance with a transmission rate. Refer to Column 11, lines 42-52. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the packet service data node compresses the broadcast message and frames the compressed broadcast message; the motivation being that in case transmission rate is low, compressing the multicast information allows more information to be transmitted per unit time; thereby saving bandwidth and processing time.

Referring to claim 14, refer to the rejection of claim 6. Furthermore, Eyuboglu et al disclose means for addressing the broadcast message to an intended recipient (164). Refer to Column 10, lines 41-51; and Column 11, line 57 to Column 12, line 11.

Eyuboglu et al does not specifically disclose that the infrastructure element is a packet control function node. However, Eyuboglu et al discloses that the infrastructure element is a PDSN. A PDSN performs a similar function as a packet control function node since it controls packet transmission in a wireless network.

Referring to claim 15, refer to the rejection of claim 6. Furthermore, Eyuboglu et al disclose means for addressing the broadcast message to an intended recipient (164), wherein the multicast address corresponds to intended recipients of the broadcast message. Refer to Column 10, lines 41-51; and Column 11, line 57 to Column 12, line 11.

Referring to claim 16, refer to the rejection of claim 6. Furthermore, Eyuboglu et al disclose means for addressing the broadcast message to an intended recipient (164), wherein the infrastructure element further comprises means for transmitting the broadcast message to an intended recipient. Refer to Column 10, lines 41-51; and Column 11, line 57 to Column 12, line 11.

9. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,781,999 to Eyuboglu et al in view of U.S. Patent No. 6,801,508 to Lim, and in further view of U.S. Patent No. 6,895,216 to Sato et al.

Referring to claim 10, Eyuboglu et al disclose in Figure 8 a wireless communication system for processing broadcast transmissions in a wireless communication system, the system comprising:

A packet service data node (PDSN 100) adapted to receive a broadcast message. Refer to Column 2, lines 41-58 and Column 9, lines 22-23.

A *radio network controller* (RNC 124,128) adapted to receive the broadcast message, the broadcast message encapsulated in an Internet Protocol packet addressed to a multicast address. "When the PDSN receives an IP packet that belongs to a multicast group, it encapsulates it in a Simple Link Layer frame, and sends it over these multicast A10 tunnels to RNC's that serve members of that multicast group". Refer to Column 5, lines 38-43 and Column 9, lines 22-33.

Wherein a framing protocol (Simple Link Layer Protocol) is applied to the Internet Protocol packet, wherein the framed Internet Protocol packet (Figure 10, link layer frame carrying IP multicast packet 140) has been encapsulated with a routing protocol

(A10 Tunnel ID for forwarding over multicast A10 tunnels). "When the PDSN receives an IP packet that belongs to a multicast group, it encapsulates it in a Simple Link Layer frame, and sends it over these multicast A10 tunnels to RNC's that serve members of that multicast group". The RNC's can determine from the A10 Tunnel ID the multicast group that the packet belongs to. Refer to Column 9, lines 6-10 and 22-40; and Column 10, lines 11-16.

Eyuboglu et al do not disclose that the *radio network controller* is a *packet control function node*.

Lim discloses in Figure 4 that a RNC (radio network controller) performs the same functions as a packet control function PCF node (RNC/PCF 121,122,123). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the *radio network controller* is a *packet control function node*; the motivation being that a RNC performs the same functions in a circuit switched environment as a PCF in a packet data environment.

Eyuboglu et al do not disclose that the Internet Protocol packet has been compressed.

Sato et al disclose compressing multicast information to several wireless terminals in accordance with a transmission rate. Refer to Column 11, lines 42-52. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the packet service data node compresses the broadcast message and frames the compressed broadcast message; the motivation being that in case transmission rate is low, compressing the multicast information allows

more information to be transmitted per unit time; thereby saving bandwidth and processing time.

Referring to claim 12, Eyuboglu et al disclose that the packet control function node (RNC 124,128) processes the broadcast message and forwards the broadcast message to an intended recipient. The RNC 124,128 forwards an incoming multicast packet to those sectors that have a member in that multicast group. Refer to Column 10, lines 52-55 and Column 11, lines 49-52.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,781,999 to Eyuboglu et al in view of U.S. Patent No. 6,801,508 to Lim.

Eyuboglu et al disclose in Figure 8 a communication path for processing broadcast messages in a wireless communication system, comprising:

A first multicast tree portion (IP core network to PDSN 100), wherein the broadcast message is transmitted addressed to a multicast Internet Protocol address. PDSN 100 receives multicast traffic from IP core network. Refer to Column 9, lines 22-23.

A second multicast tree portion (PDSN 100 to RNC 124,128), wherein the broadcast message is transmitted addressed to a multicast Internet Protocol address. "When the PDSN receives an IP packet that belongs to a multicast group, it encapsulates it in a Simple Link Layer frame, and sends it over these multicast A10 tunnels to RNC's that serve members of that multicast group" (Column 9, lines 23-33).

A third portion (RNC 124,128 to RN 160,162), wherein the broadcast message is transmitted addressed to at least one unicast address. "When the RNC serves users

from several Radio Node's 160,162, it tunnels unicast copies of the air link frames carrying the IP packets to all these RN's." (Column 10, lines 41-43). Refer to Column 10, lines 11-31.

Wherein the first multicast tree portion is formed between a content source (IP core network) and a packet data service node (PDSN 100), the second multicast tree portion is formed between the packet data service node (PDSN 100) and a *radio network controller* (RNC 124,128), and the third portion is formed from the *radio network controller* (RNC 124,128) to the base station (connected to RN 160,162).

Eyuboglu et al do not disclose that the *radio network controller* is a *packet control function node*.

Lim discloses in Figure 4 that a RNC (radio network controller) performs the same functions as a packet control function PCF node (RNC/PCF 121,122,123). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the *radio network controller* is a *packet control function node*; the motivation being that a RNC performs the same functions in a circuit switched environment as a PCF in a packet data environment.

Response to Arguments

11. Applicant's arguments filed September 7, 2006 have been fully considered but they are not persuasive.

Referring to the argument of independent claims 1 and 9 (page 9, line 7 to page 11, line 6): Refer to the new rejection of claims 1 and 9.

Referring to the argument of independent claim 10 (page 15, line 11 to page

17, line 8): Eyuboglu et al disclose in Figure 8 that a PDSN receives an IP packet belonging to a multicast group (addressed to a multicast address), encapsulates it in a Simple Link Layer frame (applies to it a framing protocol), and attaches onto it an A10 Tunnel ID for forwarding over multicast A10 tunnels (encapsulates it with a routing protocol). The framed IP packet is shown in Figure 10 as the link layer frame carrying IP multicast packet 140. "When the PDSN receives an IP packet that belongs to a multicast group, it encapsulates it in a Simple Link Layer frame, and sends it over these multicast A10 tunnels to RNC's that serve members of that multicast group". Refer to Column 2, lines 41-58; Column 5, lines 38-43; Column 9, lines 6-10 and 22-40; and Column 10, lines 11-16. The only difference between the claim and Eyuboglu et al is that Eyuboglu et al does not disclose that the *radio network controller* is a *packet control function node* (refer to the Lim rejection of claim 10) and that the Internet Protocol packet has been compressed (refer to the Sate et al rejection of claim 10).

Referring to the argument of claim 21 (page 17, line 9 to page 18, line 31): Euyboglu et al disclose in Figure 8 shows a multicast tree from an IP core network to PDSN 100, from PDSN 100 to RNC's 124,128, from RNC's 124,128 to RN's 160,162, and finally from RN's 160,162 to the destination mobile terminals 164. Therefore, each step of the process forms a portion of the multicast tree. So, a first multicast tree portion is from IP core network to PDSN 100, a second multicast tree portion is from PDSN 100 to RNC's 124,128, and a third multicast tree portion is from RNC's 124,128 to RN's 160,162.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C. Ng
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CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600